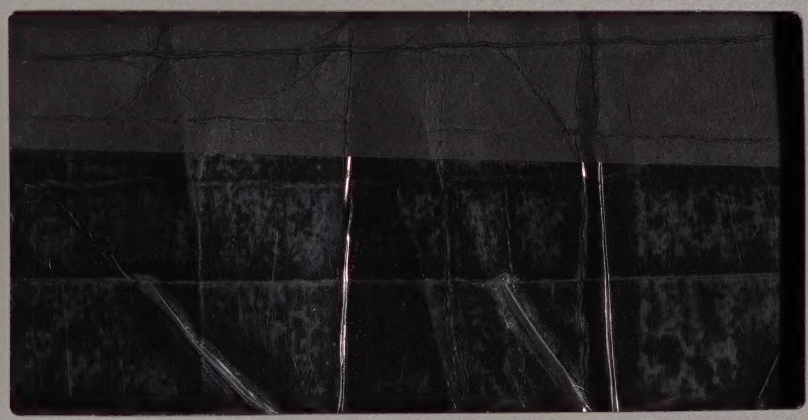

VALHALLA SCIENTIFIC

Building New Standards for Technology

VALHALLA SCIENTIFIC, INC.

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MODEL 2575A

AC/DC CURRENT SHUNT

OPERATION MANUAL

VALHALLA SCIENTIFIC

9955 MESA RIM ROAD
SAN DIEGO, CA 92121
(619) 457-5576
(619) 457-0127 Fax

CERTIFICATION

Valhalla Scientific, Inc. certifies that this instrument was thoroughly tested and inspected and found to meet published specifications when shipped from the factory. Valhalla Scientific, Inc. further certifies that its calibration measurements are traceable to the National Institute of Standards and Technology to the extent allowed by NIST's calibration facility.

WARRANTY

The warranty period for this instrument is stated on your invoice and packing list. Please refer to these to determine appropriate warranty dates. We will repair or replace the instrument during the warranty period provided it is returned to Valhalla Scientific, Inc. freight prepaid. No other warranty is expressed or implied. We are not liable for consequential damages. Permission and a return authorization number must be obtained directly from the factory for warranty repairs. No liability will be accepted if returned without such permission. Due to continuing product refinement and due to possible parts manufacturer changes, Valhalla Scientific reserves the right to change any or all specifications without notice.

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SECTION I INSTALLATION

1-1. Initial Inspection

If the external shipping container shows evidence of damage, it should be immediately brought to the attention of the carrier and such damage noted on the bill of lading.

Unpack the instrument and retain the shipping container until the instrument has been inspected for possible damage in shipment. If shipment damage is apparent, notify the carrier and obtain authorization for repairs before returning the instrument to the factory. If the external shipping container shows evidence of damage, but the instrument shows no external damage, it may be advisable to check the performance of the unit to determine that the instrument has not sustained hidden damage.

1-2. Power Requirements

The instrument is shipped from the factory for operation at 115VAC or 230VAC 50/60 Hz. This voltage range is selectable via the rear panel switch. When 115VAC is selected, the unit will operate at line voltages of 103 to 127 volts. When 230VAC is selected, the unit will operate at line voltages of 207 to 250 volts. A ¼ Amp Slo-Blo fuse is used in the 115V position. A .125Amp Slo-Blo fuse is used in the 230V position.

Caution: Use the power cord provided with the instrument. If a longer cord is needed, a three-terminal extension cord may be used. DO NOT use a cord that lacks a continous ground, as this may render the instrument unsafe for use.

1-3. Installation

If the Model 2575A is to be used in the bench top configuration, installation requires only that the line cord be connected to the rear panel connector and the other end inserted into the appropriate wall receptacle. A rear panel mounted fuse provides protection for the internal circuits.

Optional brackets are available to mount the unit in a standard 19" equipment rack, designated as Option RX3. Due to its size and center of gravity, the unit should be supported on both sides and along its entire length by the use of trays or slides. If it is to be transported while in the rack, the unit should be securely mounted to prevent upward or downward movement.

Proper ventilation must be maintained in order to assure maximum performance from your Model 2575A. Note the location of the air vents on the rear of the instrument. A free flow of air should be provided around these vents. Performance is degraded at higher temperatures as specified in Section III. At no time should the ambient air temperature around this instrument exceed 50°C while operating.

2-1. General Description

The Valhalla Model 2575A is an AC/DC Current Shunt that can be used as a laboratory standard for current or as a resistance standard. Also included is a built-in precision buffer amplifier with a gain of 10.000.

2-2. Current Measurement

The 2575A offers six isolated, switch-selectable decade ranges from 2mA to 100A full scale. Each shunt is a four-terminal, non-inductive type resistance element ensuring a flat frequency response throughout the bandwidth of the instrument. The shunts are forced-air cooled to minimize temperature rise and maximize thermal stability.

The full scale voltage drop at the non-amplified output terminals for the lower shunts is 200.00mV. The full scale voltage drop across the 100A shunt is 100.00mV.

2-3. Resistance Standard

The 2575A provides six decades of four-terminal resistors from .001Ω to 100Ω and can be used as a laboratory standard resistor. Each range is independently adjustable for ease of calibration.

2-4. Precision Amplifier

Included in the Model 2575A is a built-in precision buffer amplifier with a gain of 10.000. This amplifier has a frequency response from DC to 10KHz. The amplifier can also be used with external inputs by placing the range switch to EXT. Inputs should not exceed 200mV. The output of the amplifier is suitable for driving thermal transfer systems, if desired.

2-5. Optional Accessories

Option RX3: Rack Ears

Option RX3 is a set of rack ears that adapt the Model 2575A for installation in a standard 19" equipment rack.

Option I-150: Current Transformer

Option I-150 is a clamp-on current transformer (CT) that extends the AC current measuring capability of the 2575A to 150 amps. The 1000:1 ratio is 2% accurate from 50Hz to 400Hz. The device accomodates conductors up to ½" in diameter.

Option I-1000: Current Transformer

Option I-1000 is a clamp-on current transformer (CT) that extends the AC current measuring capability of the 2575A to 1000 amps. The 1000:1 ratio is 2% accurate from 50Hz to 400Hz. The device accomodates conductors up to 2" in diameter.

Option BBL: Banana to Banana Cable

Option BBL is a 4' shielded coaxial cable terminating in double banana connectors.

Option HC: Heavy-Duty Cable

Option HC is a 4AWG heavy-duty cable designed to connect the Valhalla Model 2555A 100 amp output terminals to the Model 2575A 100 amp input terminals.

Table 3-1. Ranges and Accuracy

Range	Shunt Value	DC Accuracy (% of range)	AC Accuracy (% of range)	Frequency Response	Maximum Input Current
100A	.001Ω	± 0.05%	± 0.1%	DC-1KHz	100 Amps
20A	.01Ω	± 0.02%	± 0.1%[1]	DC-10KHz	20 Amps
2A	.1Ω	± 0.02%	± 0.1%	DC-10KHz	2 Amps
200mA	1Ω	± 0.01%	± 0.1%	DC-10KHz	200 mAmps
20mA	10Ω	± 0.01%	± 0.1%	DC-10KHz	20 mAmps
2mA	100Ω	± 0.01%	± 0.1%	DC-10KHz	2 mAmps

[1] AC accuracy is ± 0.5% above 1KHz (20A range only)

Table 3-2. Amplifier Characteristics

Amplitude Gain	10.000
Gain Accuracy (RTI)	± 0.01% of output ± 100μV at DC
Frequency Response	± 0.05% of output to 10KHz
Input Resistance	> 10^{10} Ω
Output Resistance	< 1Ω
Maximum Input Voltage (without damage)	± 300 mVDC or AC_{peak}

Table 3-3. Physical Specifications

Temperature Range	0°C to 50°C
Temp Coefficient	< 0.001% per °C
Power	115/230 VAC, 50/60Hz, 12 watts
Size	4" H x 17" W x 11.5" D
	10cm H x 43cm W x 30cm D
Weight	8 lbs net, 18 lbs shipping
	4kg net, 8.5kg shipping

4-1. Introduction

This section of the manual contains complete operating instructions for the Model 2575A AC/DC Current Shunt.

4-2. Power On/Off

A push-button mounted on the 2575A front panel is used to apply or remove AC line power to the instrument. Illumination of the front panel LED confirms application of power.

Note: The unamplified output terminals may be used regardless of whether or not the 2575A is connected to the AC line power. In this situation, however, no cooling is provided to the shunts and prolonged use of high currents should be avoided.

4-3. Front Panel

The locations and functions of the front panel connectors and switches are described in Table 4-1.

4-4. Rear Panel

The locations and functions of the rear panel connectors and switches are described in Table 4-2.

4-5. Current Measurement

The following method is recommended when using the 2575A to measure current:

1) Connect the load to the appropriate front panel shunt terminals. Heavy-duty lugs or Valhalla Option "HC" should be used when connecting to the 100 Amp terminals.

Caution: Shunts can be damaged by the application of currents greater than the rating of the shunt. If the amount of current to be measured is unknown, start by making connections to the 100 Amp terminals. This prevents damage to the lower shunts. Once the level has been approximated, choose the appropriate shunt and make new connections as necessary.

2) Select the appropriate range with the Range Selector knob.

3) Connect the measuring device (DVM, thermal transfer standard, etc.) to the amplified or unamplified output terminals as desired.

Note: The fullscale output voltage of the unamplified terminals is ±200mVDC or AC_{RMS}. The fullscale output voltage of the amplified terminals is ±2VDC or AC_{RMS}.

Note: The shunts are isolated through the selector switch. It is not necessary to remove a load connected to one range in order to connect a load to another range.

Note: The amplified output may drive a load of 10mA maximum.

4-6. Resistance Standard

The Model 2575A may be used as a laboratory resistance standard. The resistor values are 0.001Ω, 0.01Ω, 0.1Ω, 1Ω, 10Ω and 100Ω. Four-wire resistance measurement should be made in the following manner:

1) Select the resistor to be used by refering to the markings near the terminals on the 2575A front panel.

2) Connect the current sourcing terminals of the ohmmeter to the appropriate 2575A shunt input terminals.

3) Connect the voltage sensing terminals of the ohmmeter to the 2575A Output Voltage terminals. The unamplified terminals should be used.

4) Select the working shunt with the Range Selector knob.

Note: The Valhalla Model 2575A is designed for use in a 4-wire resistance configuration. While it is possible to use the 2575A as a 2-wire resistor, this configuration is not specified and may produce undefined results.

4-7. Precision Amplifier

The Valhalla Model 2575A incorporates a precision buffer amplifier which may be used by itself or with the shunts as described above. If the amplifier is to be used by itself, the following steps should be performed:

1) Set the Range Selector knob to "EXT".

2) Connect the input signal to the *left* set of "Output Voltage" terminals. These terminals double as the input terminals to the precision amplifier. The maximum input voltage should not exceed ±200mVDC or AC_{RMS}.

3) Connect the measuring device to the *right* set of "Output Voltage" terminals. The maximum output voltage is ±2VDC or AC_{RMS}. The maximum current provided by the amplifier is 10mA.

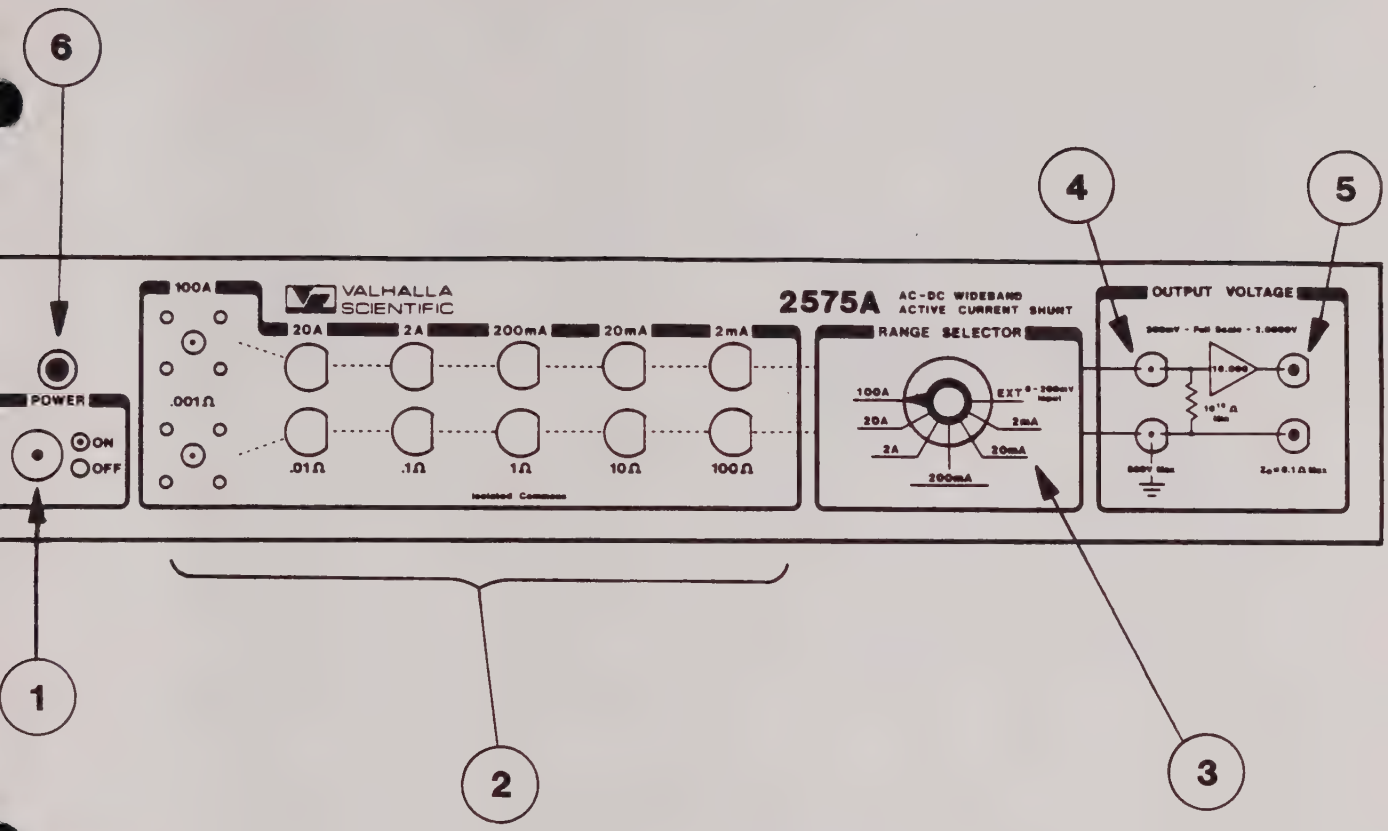


Figure 4-1. 2575A Front Panel

Index #	Device	Function/Description
1	Power Switch	Energizes/De-energizes internal power
2	Shunt Terminals	Current input
3	Range Selector	Selects shunt range or amplifier input
4	Output/Input	Unamplified shunt output/Amplifier input
5	Output	Amplified output terminals
6	ON Indicator	Power applied to internal circuitry

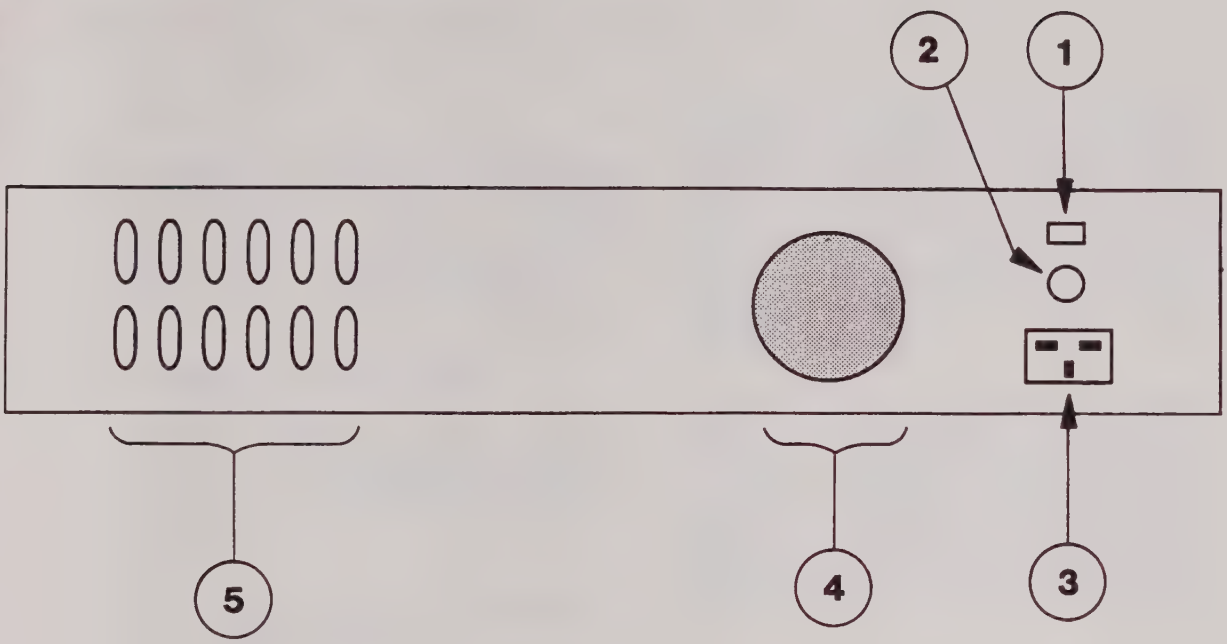


Figure 4-2. 2575A Rear Panel

Index #	Device	Function/Description
1	115/230 switch	Set for local AC line power
2	Fuse	Protects the internal circuitry
3	Receptacle	Use a 3-prong type cord only
4	Fan	Air inlet - DO NOT BLOCK
5	Grill	Air outlet - DO NOT BLOCK

5-1. General

The Model 2575A should be calibrated at regular intervals to ensure continued accuracy. This interval may be determined by usage, however the instrument has a factory calibration interval of 6 months.

5-2. Required Test Equipment

a) Digital Voltmeter with a DC accuracy of at least 0.005% and ranges of 200mV and 2V (HP3458A or equivalent)

b) DC Voltage Source 0.001% accuracy (Valhalla 2701C or equivalent)

c) Current Calibrator with ranges of 100A, 10A, 1A, .1A, .01A and .001A (Valhalla 2555A or equivalent)

d) Precision Resistors (±.003%)

Value	Current Rating
0.001Ω	100A
0.01Ω	10A
0.1Ω	1A
1Ω	100mA
10Ω	10mA
100Ω	1mA

5-3. Description of Procedure

The Valhalla Model 2575A is calibrated using a stable source of DC current (the Valhalla Model 2555A) and a highly accurate DC voltmeter. A typical calibration setup is shown in Figure 5-1 and Figure 5-2.

The current source is adjusted to produce a precise value of current by measuring the voltage drop across the standard resistor which has a known value.

For example, to adjust the current source to produce exactly 100 Amps, the voltage across the .001Ω resistor is measured. The current source is adjusted until the reading on the voltmeter matches that of the standard resistor (using Ohm's Law: V=IR). The output of the current source is now a precise 100.00 Amps.

The leads are then moved to the Model 2575A 100 amp terminals and the voltage at the output terminals is monitored. The appropriate potentiometer is adjusted for a reading of 100.00mV, indicating that the shunt is now trimmed to a precise value (i.e. 0.0010000 ohms).

5-4. DC Calibration

Note: Potentiometer placement is shown on the board itself and on drawing number 2575-600 at the back of this manual.

Amplifier Adjustment

1) Set the 2575A Range Selector to "EXT"

2) Connect the DC voltage source at 100mV to the *left* "Output Voltage" terminals of the 2575A. These terminals double as the amplifier input terminals.

3) Connect the voltmeter to the *right* "Output Voltage" terminals.

4) Adjust RV7 until the voltmeter reads 1.0000 volts.

5) Reverse the polarity of the input voltage and balance RV7 for an equal deviation at both input polarities.

Shunt Adjustments

1) Connect the calibration equipment as shown in Figure 5-1 using the desired values shown in Table 5-1.

2) Adjust the value of the current source until the output is exactly equal to the Test Current shown in Table 5-1. This is calculated using Ohm's Law: V=IR.

Where:

R = the precise value of the standard resistor
I = the value of test current shown in Table 5-1
V = the voltage across the standard resistor

100 Amp Shunt Example:

R = 0.0010270 Ω
I = 100.00 amps
V = .10270 volts

The current source should be adjusted until the voltmeter reads 0.10270 volts. The current source has now been trimmed to produce a precise 100 amps.

3) Make the connections as shown in Figure 5-2.

4) Adjust the appropriate potentiometer for a voltmeter reading of 100.00mV.

Note: All shunts are calibrated using the same procedure as was used above for the 100 amp shunt, but the values shown in Table 5-1 are substituted accordingly. The shunts may be calibrated in any order desired.

5-5. AC Calibration

The AC frequency response of this instrument is inherent in its design and requires no periodic adjustments. The frequency response *should* be checked whenever a repair is made to the amplifier or to any shunt resistor. If you should doubt the integrity of your instrument, please contact the factory.

Table 5-1. Calibration Variables

2575A Range	2555A Range	Standard Resistor	Test Current[1]	Adjust	DVM Reading
100A	100A	0.001Ω	100 Amps	RV1	100.00mV
20A	20A	0.01Ω	10 Amps	RV2	100.00mV
2A	2A	0.1Ω	1 Amp	RV3	100.00mV
200mA	200mA	1Ω	100 mAmps	RV4	100.00mV
20mA	20mA	10Ω	10 mAmps	RV5	100.00mV
2mA	2mA	100Ω	1 mAmp	RV6	100.00mV

[1] The test current should be verified and adjusted as necessary using the standard resistors as a reference prior to making any adjustment on the 2575A. (See Section 5-4.)

Figure 5-1. Test Current Verification and Adjustment

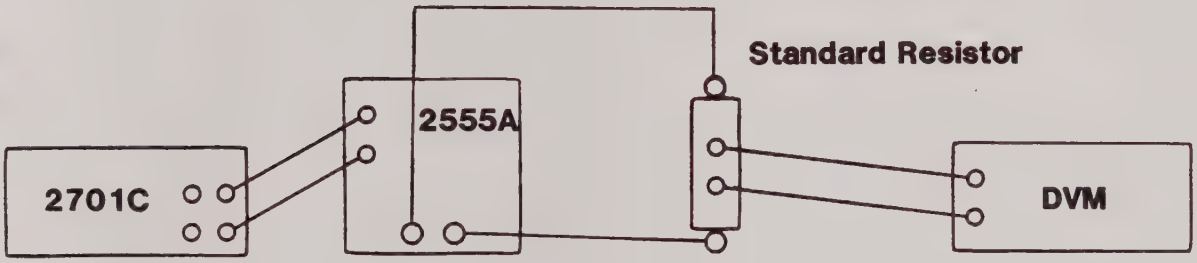
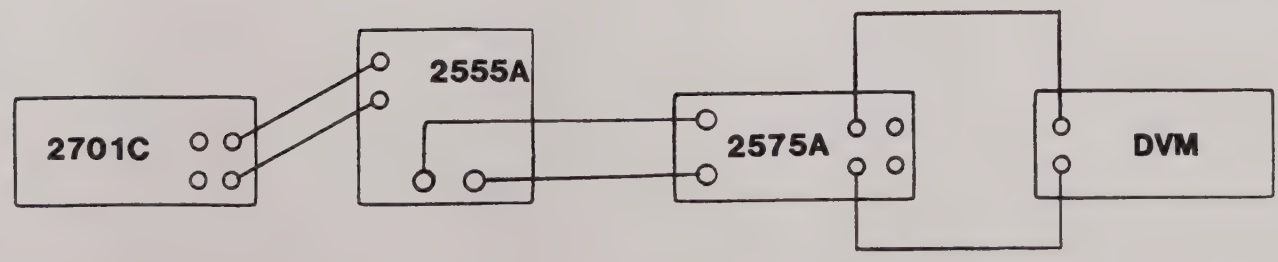


Figure 5-2. Model 2575A Calibration Setup



SECTION VI PARTS LISTS

The following parts lists are included in this manual:

2575A Main Board 2575-600
2575A Final Assembly 2575-400

REF.DES.	STOCK #	QUANTITY A	QUANTITY T	QUANTITY N	DESCRIPTION	MANUFACTURING/PURCHASING DATA
4	04-30035	1			2575A Main Board	DWG 2575-700
33	80-01922	16			22awg Wire, White PVC	M16878/1-BFE-9
34	80-01222	16			22awg Wire, Red PVC	M16878/1-BFE-2
35	80-01022	16			22awg Wire, Black PVC	M16878/1-BFE-0
36	80-01622	8			22awg Wire, Blue PVC	M16878/1-BFE-6
37	80-01522	8			22awg Wire, Green PVC	M16878/1-BFE-5
38	80-01422	8			22awg Wire, Yellow PVC	M16878/1-BFE-4
39	80-01322	8			22awg Wire, Orange PVC	M16878/1-BFE-3
C1	02-90006	1			1u 5% 50V Polycarbonate	IMB RA20105J
C2	02-90006	1			1u 5% 50V Polycarbonate	IMB RA20105J
C3	02-10006	1			0.01u 50V Ceramic disc	Illinois 103GR050-Z
C4	02-10006	1			0.01u 50V Ceramic disc	Illinois 103GR050-Z
C5	02-30010	1			10u 10V Tantalum Bead	AVX TAP106K010SP
C6	02-30010	1			10u 10V Tantalum Bead	AVX TAP106K010SP
C8	00-00000	1			Factory Select Part	
C9	00-00000	1			Factory Select Part	
C10	00-00000	1			Factory Select Part	
C11	00-00000	1			Factory Select Part	
D1	03-20000	1			Diode, general purpose	1N4148 or 1N914
D2	03-20000	1			Diode, general purpose	1N4148 or 1N914
E1	05-10330	1			Pin, bead, push-in	Molex R62-3
E2	05-10330	1			Pin, bead, push-in	Molex R62-3
E3	05-10330	1			Pin, bead, push-in	Molex R62-3
E4	05-10330	1			Pin, bead, push-in	Molex R62-3
E5	05-10330	1			Pin, bead, push-in	Molex R62-3
E6	05-10330	1			Pin, bead, push-in	Molex R62-3
E21	05-10330	1			Pin, bead, push-in	Molex R62-3
E22	05-10330	1			Pin, bead, push-in	Molex R62-3
E23	05-10330	1			Pin, bead, push-in	Molex R62-3
IC1	03-30111	1			Precision chopper amplifier	Intersil ICL7650CPD or equiv.
IC2	03-30085	1			Regulator,+8V,0.5A,TO202 or TO220	78M08CP or LM340T-8.0
IC3	03-30086	1			Regulator,-8V,0.5A,TO202 or TO220	79M08CP or LM320T-8.0
IC4	03-30090	1			General Purpose JFET Op-Amp	LF356N or H (ALT 03-30074)
R1	00-00000	1			Factory Select Part	
R2	00-00000	1			Factory Select Part	
R3	00-00000	1			Factory Select Part	
R4	01-20016	1			1K 0.05% 5ppm/C Wire Wound	Goldstar GS805-1K-.05%-5PPM
R5	01-20016	1			1K 0.05% 5ppm/C Wire Wound	Goldstar GS805-1K-.05%-5PPM
R6	01-20016	1			1K 0.05% 5ppm/C Wire Wound	Goldstar GS805-1K-.05%-5PPM
R7	01-20022	1			1.01 0.1% 10ppm/C Wire Wound	Goldstar R0001 (Block)
R8	01-10032	1			69.8 1% 50ppm/C 1/4W Metal Film	RN60C69R8F
R9	01-20063	1			10.1 0.1% 10ppm/C wire wound	Goldstar GS811-10R1-0.1%-10ppm
R10	01-10014	1			698 1% 50ppm/C 1/4W Metal Film	RN60C6980F
R11	01-20064	1			101 0.1% 10ppm/C wire wound	Goldstar GS809-101R-0.1%-10ppm
R12	01-10035	1			6.98K 1% 50ppm/C 1/4W Metal Film	RN60C6981F
R13	01-01041	1			1K 5% 1/4W Carbon Film	RC07GF102J
R14	01-20016	1			1K 0.05% 5ppm/C Wire Wound	Goldstar GS805-1K-.05%-5PPM
R15	01-20011	1			8.9725K 0.05% 5ppm/C Wire Wound	Goldstar GS805-8.9725K-.05%-5PPM
R20	01-01067	1			24K 5% 1/4W Carbon Film	RC07GF243J
RV1	01-50018	1			10 Top Adjust	Beckman 68WR10ohm
RV2	01-50018	1			10 Top Adjust	Beckman 68WR10ohm

REF.DES.	STOCK #	QUANTITY A	QUANTITY T	QUANTITY N	DESCRIPTION	MANUFACTURING/PURCHASING DATA
RV3	01-50018	1			10 Top Adjust	Beckman 68WR10ohm
RV4	01-50014	1			100 Top Adjust	Beckman 68WR100ohm
RV5	01-50013	1			1K Top Adjust	Beckman 68WR1K
RV6	01-50012	1			10K Top Adjust	Beckman 68WR10K
RV7	01-50033	1			50 Top Adjust	Beckman 68WR50ohm
SW1	05-03031	1			Rotary Switch,2Pole 12 Way	Centralab,SA-203-3F000

REF.DES.	STOCK #	QUANTITY A	QUANTITY T	QUANTITY N	DESCRIPTION	MANUFACTURING/PURCHASING DATA
4	2575-600	1			2575A Main bd. Assy.	Assembly 2575-600
5	05-10385	2			2575A Binding post Assy.	ASSY 2575-401
6	2575-402	1			2575A Shunt Assy.	Assembly 2575-402
8	04-10460	2			2790 Side Rail	DWG 2790-206
9	04-10333	4			Standard Bezel	DWG 2724-205
10	04-10911	2			2790 Top & Bottom Cover	DWG 2790-228
11	04-10346	2			2300/2575/2053 Main bd. support bar	DWG 2300-214
12	04-10332	4			Standard Corner Block	DWG 2724-204
13	04-10425	1			2575A Rear panel	DWG 2575-200
14	04-10426	1			2575A Shunt support/ Wind tunnel	DWG 2575-201
15	04-10509	1			2575A Front panel (screened)	DWG 2575-100 using 04-10122
18	05-10391	1			Power supply, +/-15V	Powermate ETA-12/15B
19	05-03061	1			Switch,Power,Black,Yellow,2PDT	Schadow,ZFNE152UEE110101068
20	05-03017	1			Slide Switch,115/230V,2Pole	Switchcraft,4625LFR
21	05-10018	1			Fuseholder, panel mount	Littlefuse 345061
22	05-04010	1			0.25A,Slo Blo Fuse	Littlefuse,313-.250
23	05-10063	1			Connector, AC, receptacle	Switchcraft EAC-301
24	05-10067			1	Cable, power cord	Electrocord 39806
25	05-10015	4			Foot, rubber, white	Acc. Rubber 2089W-017
26	05-10389	1			Fan, 115V, small	Micronel V624L 115A
27	05-10390	1			Fan guard for 05-10389	Micronel V600
30	05-10102	5			Binding post, white,30 amp	Superior BP30WTC
31	05-10021	5			Binding post, red, 30 amp	Superior BP30R
32	05-10002	2			Binding post, white	Superior BP21WTC
33	05-10164	2			Binding post, blue	Superior BP21BLC
34	05-10153	2			Knob, black, 1/4-20	Rogan CR2
35	05-10680	1			Knob,Black with Pointer Skirt	Rogan GRI-11-CSK-7-M
39	90-06007	6			#6-32 x 7/16" Phil Pan S.S.	
40	90-06010	4			#6-32 x 5/8" Phil Pan S.S.	
41	90-06006	18			#6-32 x 3/8" Phil Pan S.S.	
42	91-06006	12			#6-32 x 3/8" Phil Flat 82 Deg. S.S.	
43	90-04006	10			#4-40 x 3/8" Phil Pan S.S.	
44	90-04009	4			#4-40 x 9/16" Phil Pan S.S.	
45	91-06009	8			#6-32 x 9/16" Phil Flat 82 Deg. S.S.	
46	96-00028	2			Stud Brass 1/4-20 x 3/4"	
47	98-04000	10			#4 Flat Washer S.S.	
48	98-04001	16			#4 Split Lock Washer S.S.	
49	98-06000	8			#6 Flat Washer STD S.S.	
50	98-06001	25			#6 Split Lock Washer,STD,S.S.	
51	98-40000	4			1/4" Flat Washer	
52	98-40001	2			1/4" Split Lock Washer	
53	98-40300	2			1/4" Flat Washer (Brass)	WORLDWIDE
54	05-10086	1			Solder lug, #6, internal star	Smith 1412-6
55	98-06002	4			#6 Internal Star Washer, S.S.	
56	97-04001	18			#4-40 Radio Hex Nut S.S.	
57	97-06001	6			#6-32 Hex Nut, SMALL PATTERN, S.S.	
58	97-40300	4			1/4"-20 Brass Hex Nut	
59	99-06000	5			#6 18-22awg Ring Lug (Red)	PANDUIT PV18-6R
60	80-01218	4			18awg Wire, Red PVC	M16878/1-BHE-2
61	80-01018	14			18awg Wire, Black PVC	M16878/1-BHE-0
62	80-01118	32			18awg Wire, Brown PVC	M16878/1-BHE-1

REF.DES.	STOCK #	QUANTITY A	T	N	DESCRIPTION	MANUFACTURING/PURCHASING DATA
63	80-01318	18			18awg Wire, Orange PVC	M16878/1-BHE-3
64	80-01918	20			18awg Wire, White PVC	M16878/1-BHE-9
65	80-01418	18			18awg Wire, Yellow PVC	M16878/1-BHE-4
67	05-10331	3			Socket, For Conn. Housing (0.62 DIA) 18-22awg	Molex 02-06-1103
68	70-00003	12			3/16" Black Shrink Tubing	3000187 BLK 3M
70	05-10436	2			Standoff, 1/4 hex, 7/16 lg, 6-32, M-F	RAF 4533-632-SS-0
71	90-06204	2			#6-32 x 1/4" Phil Pan Black	
72	80-01518	2			18awg Wire, Green PVC	M16878/1-BHE-5
73	92-06004	4			6-32 x 1/4" Phil Truss Head S.S.	
74	80-01120	8			20awg Wire, Brown PVC	M16878/1-BGE-1
75	80-01220	6			20awg Wire, Red PVC	M16878/1-BGE-2
76	80-01920	6			20awg Wire, White PVC	M16878/1-BGE-9
77	80-00020	2			20awg Bus Wire	
78	99-99010			1	SOLDER SN63WRAP3	QQ-S-571
79	80-02020	7			20awg Wire, Black TFE	M16878/4-BGE-0
80	80-02620	7			20awg Wire, Blue TFE	M16878/4-BGE-6
81	80-02220	7			20awg Wire, Red TFE	M16878/4-BGE-2
C7	02-80005	1			2.7u 100V Mylar	Mepco 713A1RR275PK101SN
DS1	05-01026	1			Neon Lamp,Panel Mount 115VAC,w/resistor	IDI,IDI2150A1
TB1	05-10050	1			Terminal, solder, #6	Smith 3005

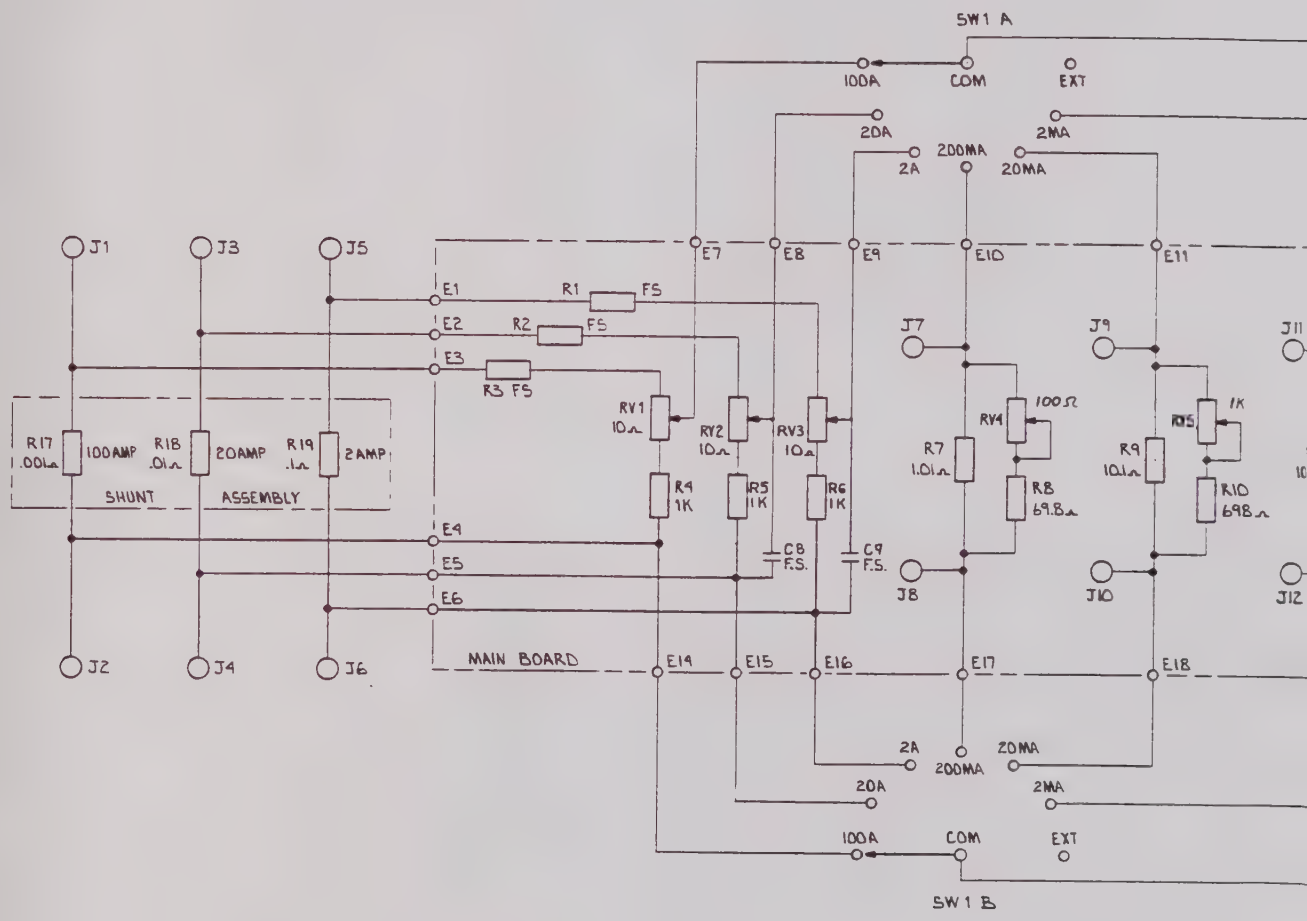
SECTION VII DRAWINGS

The following drawings are included in this manual:

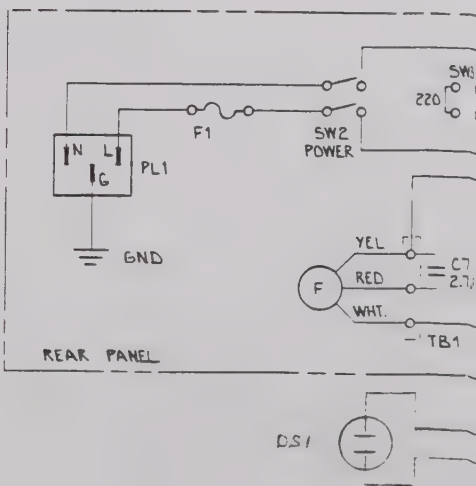
2575A Schematic 2575-070
2575A Main Board Assy 2575-600
2575A Chassis Assy 2575-400

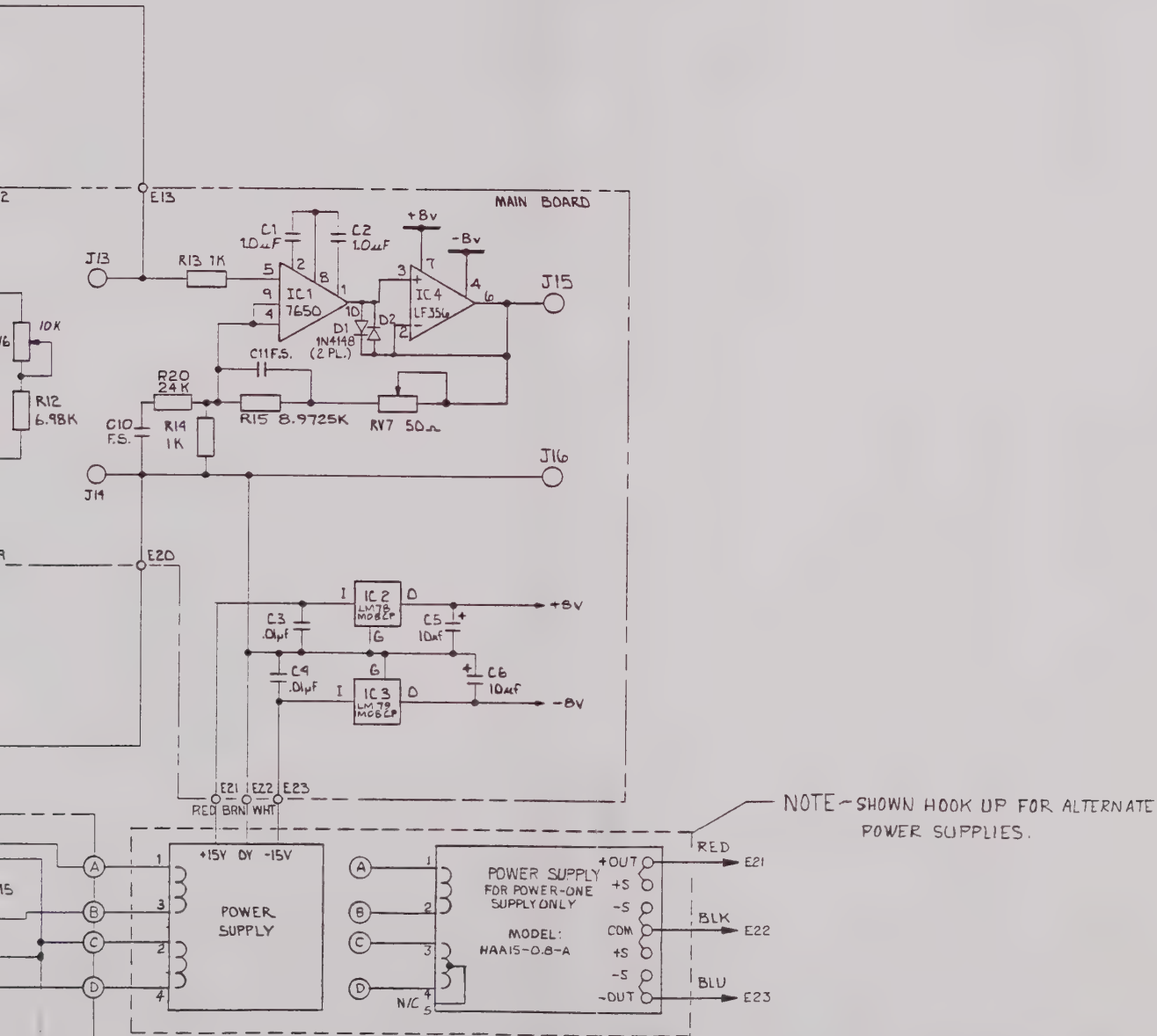
NOTES: (UNLESS OTHERWISE SPECIFIED)

1. J1 THRU J16 ARE MOUNTED ON FRONT PANEL



POWER CONNECTIONS		
IC #	-8V	+8V
1	7	11





DASH NO	QTY REQD	NEXT ASSEMBLY	USED ON

TOLERANCES
X = ± 30'
.XX = ± .03
.XXX = ± .010

MATERIAL

FINISH

BREAK ALL SHARP CORNERS AND EDGES, MACH SURFACES 64

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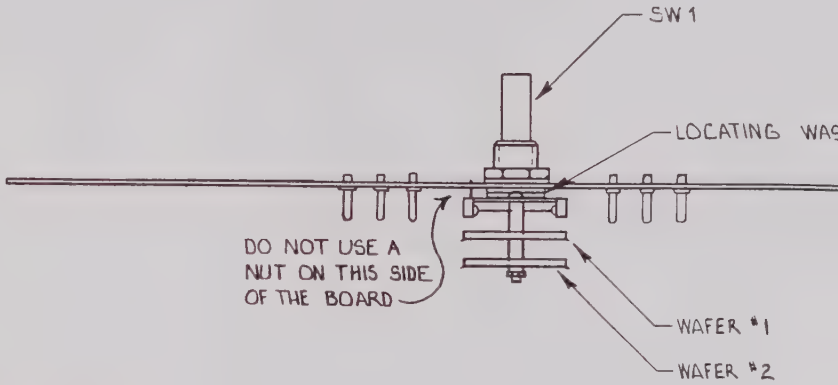
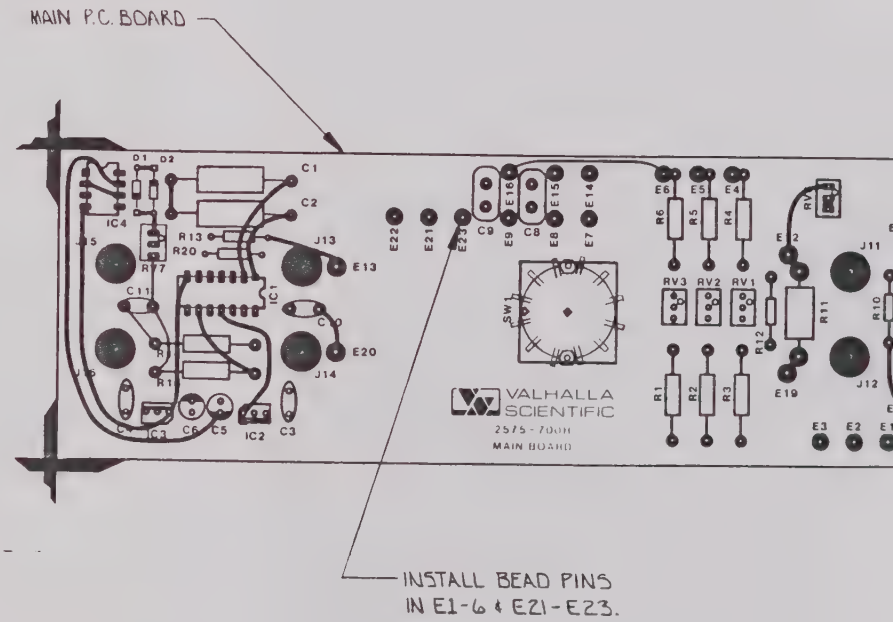
Valhalla Scientific Inc.
SAN DIEGO, CA

SCHEMATIC 2575

SCALE	CODE IDENT	SIZE	DRAWING NO	REV
SHEET 1 OF 1	53504	D	2575-070	I





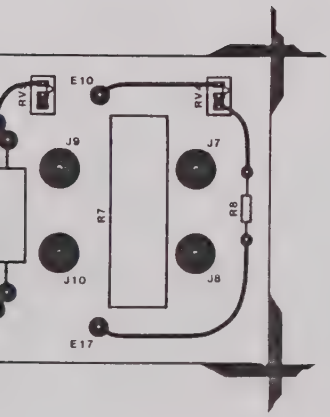
	1	2575-40
DASH NO	QTY REQD	NEXT ASSEM

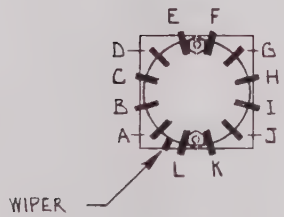
RS

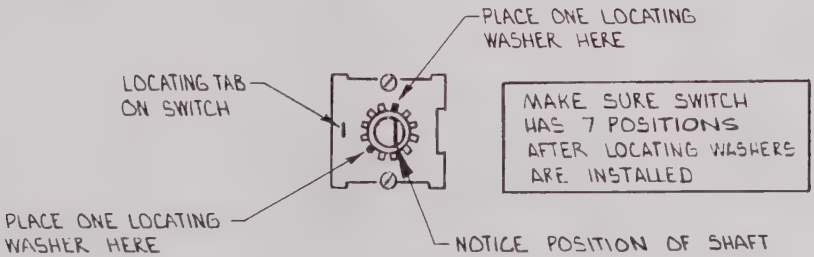
R7

WIRING FOR SW1

FROM			TO	
WAFER	1	WIPER	E13	ORN
WAFER	1	D	E7	VIO
WAFER	1	E	E8	GRY
WAFER	1	F	E9	WHT
WAFER	1	G	E10	BLK
WAFER	1	H	E11	BRN
WAFER	1	I	E12	RED
WAFER	2	WIPER	E20	BLK
WAFER	2	D	E14	YEL
WAFER	2	E	E15	GRN
WAFER	2	F	E16	BLU
WAFER	2	G	E17	VIO
WAFER	2	H	E18	GRY
WAFER	2	I	E19	WHT






PLACE ONE LOCATING WASHER HERE
LOCATING TAB ON SWITCH
MAKE SURE SWITCH HAS 7 POSITIONS AFTER LOCATING WASHERS ARE INSTALLED
PLACE ONE LOCATING WASHER HERE
NOTICE POSITION OF SHAFT

		TOLERANCES X° = ± 30' XX = ± 03 XXX = ± 010	MATERIAL	Valhalla Scientific Inc. SAN DIEGO, CA				
		BREAK ALL SHARP CORNERS AND EDGES. MACH SURFACES 64	FINISH	MAIN BD. ASSY.				
	2575A			SCALE 1:1	CODE IDENT 53504	SIZE C	DRAWING NO 2575-600	REV N
	USED ON			SHEET 3 OF 3				

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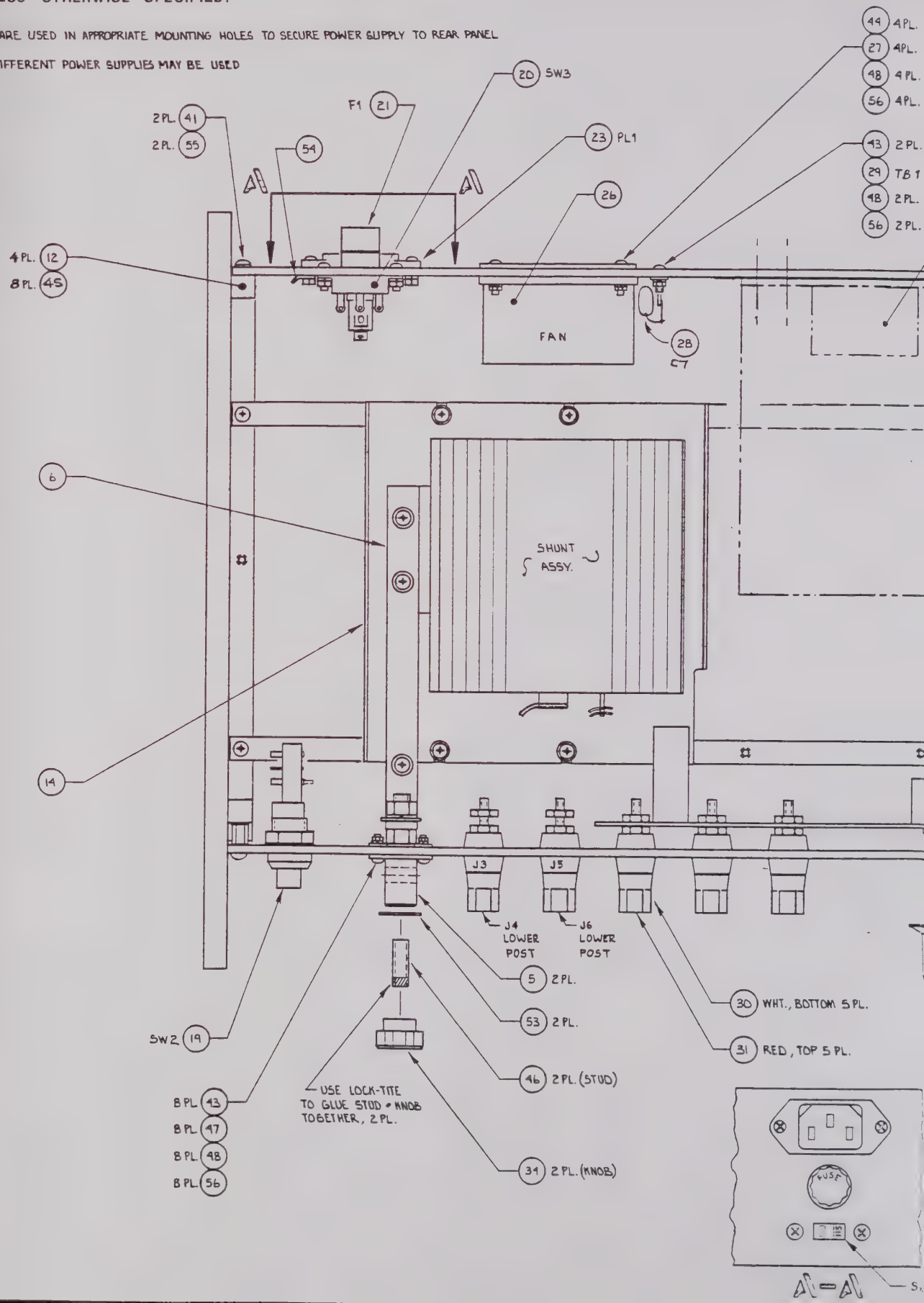
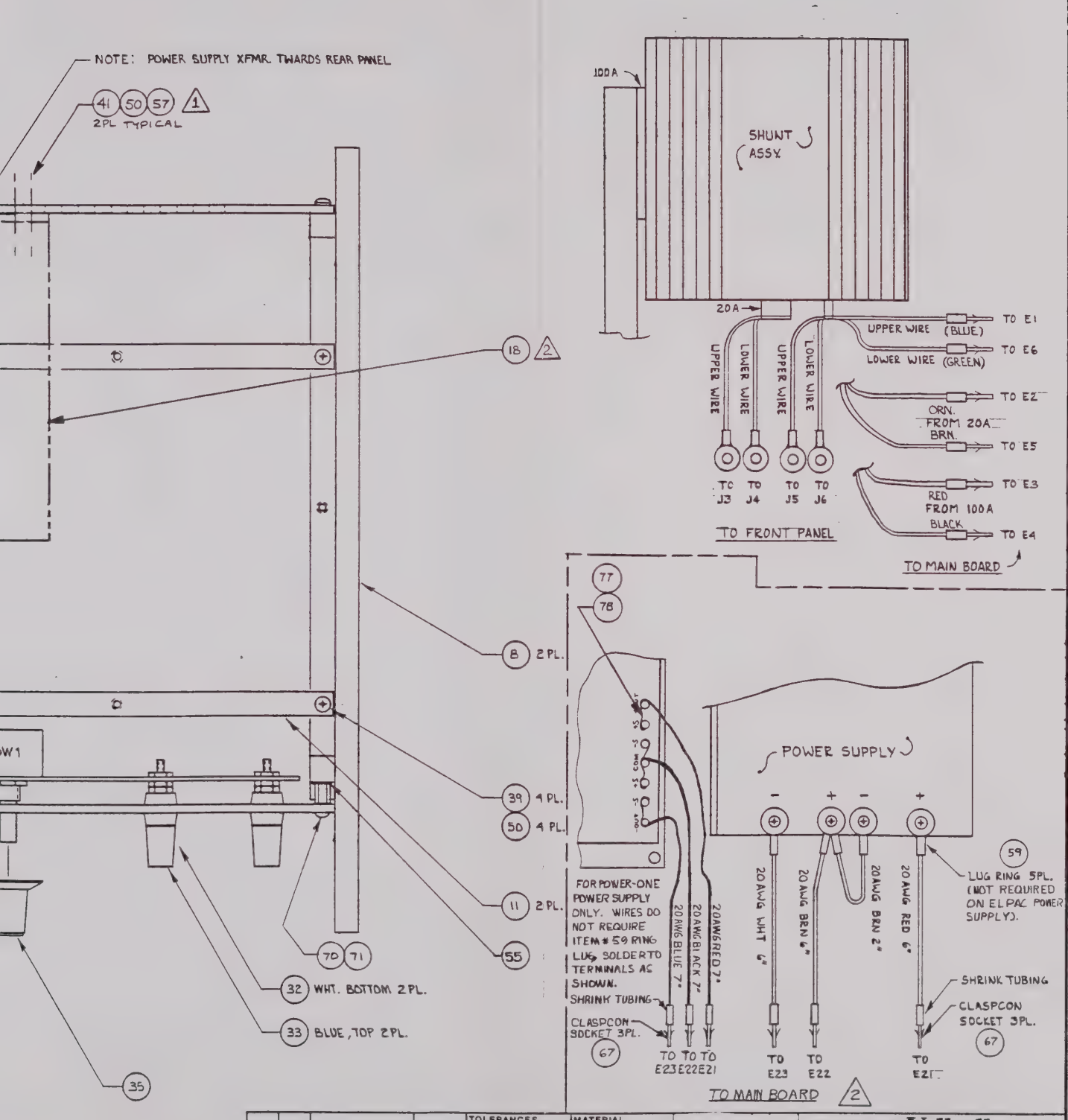
NOTES: (UNLESS OTHERWISE SPECIFIED)

1. HARDWARE USED IN APPROPRIATE MOUNTING HOLES TO SECURE POWER SUPPLY TO REAR PANEL
2. TWO DIFFERENT POWER SUPPLIES MAY BE USED

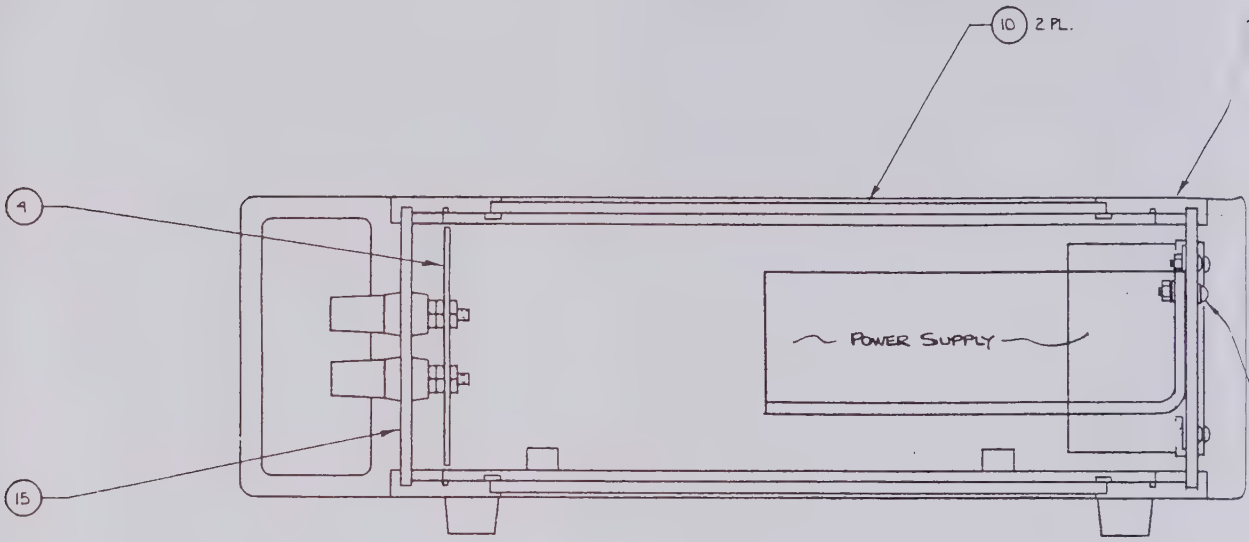


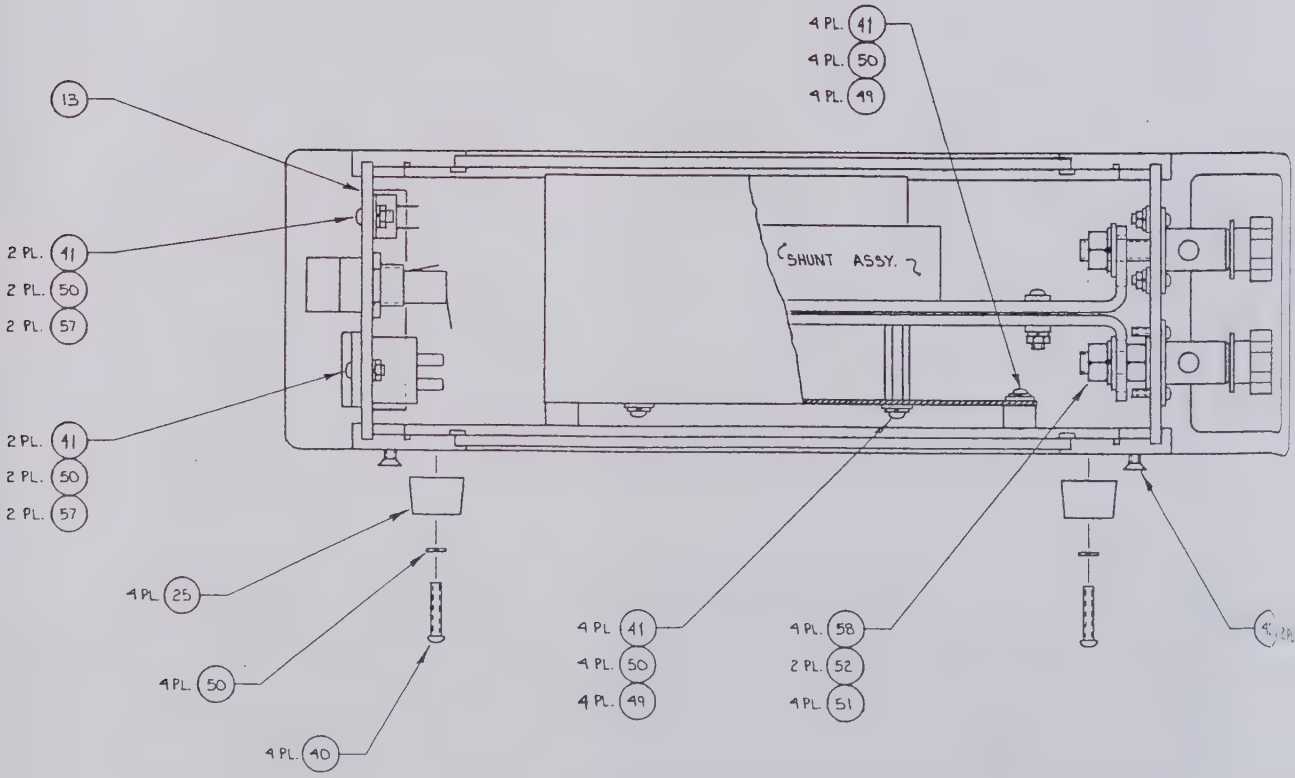


DASH NO	QTY REQD	NEXT ASSEMBLY	USED ON	TOLERANCES: X = ± 30' .XX = ± .03 .XXX = ± .010	MATERIAL	BREAK ALL SHARP CORNERS AND EDGES. MACH SURFACES 64	FINISH	Valhalla Scientific Inc. SAN DIEGO, CA	CHASSIS ASSY. (2575)		
									SCALE 1:1	CODE IDENT 53504	SIZE D
									SHEET 2 OF 2	DRAWING NO 2575-400	REV S

3 (REF)

TES: (UNLESS OTHERWISE SPECIFIED)





REVISIONS				
ECO	LTR	DESCRIPTION	DATE	APPROVED
	C	REDESIGNED 7-1-83 CRE		
0165	E	SEE ECR 0165 CRE	11-10-83	
0151	F	NEW SIDE RAIL WPW	11-22-83	
0183	G	CHANGED SHUNT WIRING W.P.W	12-6-83	
0206	H	MTG BLOCK ADD TO FRT PANEL	12-19-83	
386	I	PARTS LIST CHANGE RDM	3-21-84	
456	J	CHG P/S LOC. & HDWE	5-18-84	
708	K	CHG. LENGTH OF ITEM 45 TO 9 1/16"	4-16-85	

(9) 4 PL.

RIGHT SIDE VIEW

SOME PARTS NOT SHOWN

(41)
(49)
(50)
(57)

LEFT SIDE VIEW

SOME PARTS NOT SHOWN

) 12 PL.

DASH NO	QTY REQD	NEXT ASSEMBLY	USED ON

TOLERANCES
X = ± 30'
.XX = ± .03
.XXX = ± .010

BREAK ALL SHARP CORNERS AND EDGES. MACH SURFACES 64

MATERIAL

FINISH

DRAWN CRE	7-1-83	
CHECKED RJ	7-5-83	
APPR PW	7-5-83	
STK NO		

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Valhalla Scientific Inc.
SAN DIEGO, CA

CHASSIS ASSY. (2575)

SCALE	CODE IDENT	SIZE	DRAWING NO	REV
1:1	53504	D	2575-400	H

SHEET 5 OF 6

MP MASTER
MA21867